What is Claimed is:

1. A wind energy conversion system comprising

an upper wind turbine comprising a stator, a blade assembly mounted for rotation in a first direction about a vertical rotation axis in response to air flow through said upper wind turbine, and a rotor carried by said blade assembly for rotation past said stator to produce an electrical output;

a lower wind turbine disposed beneath said upper wind turbine and comprising a stator, a blade assembly mounted for rotation in a second direction, opposite said first direction, about said vertical rotation axis in response to air flow through said lower wind turbine, and a rotor carried by said blade assembly of said lower wind turbine for rotation past said stator of said lower wind turbine to produce an electrical output, each of said upper and lower wind turbines producing a torque;

a tower supporting said upper and lower wind turbines in an elevated position above the ground; and

a balancing mechanism for balancing said torques to avoid a net torque.

2. The wind energy conversion system recited in claim 1 wherein said blade assembly for said upper wind turbine comprises an inner rim, an outer rim disposed concentrically around said inner rim, and a plurality of blades extending between said inner and outer rims radial to said vertical rotation axis, said blade assembly for said lower wind turbine comprises an inner rim, an outer rim disposed concentrically around said inner rim for said lower wind turbine, and a plurality of blades extending between said inner and

outer rims for said lower wind turbine radial to said vertical rotation axis, said blades of said upper wind turbine being oriented in opposition to said blades of said lower wind turbine, and further including a drum disposed within said inner rims and a spinner extending above said blade assembly for said upper wind turbine for deflecting air toward said blades.

3. The wind energy conversion system recited in claim 2 wherein said rotor for said upper wind turbine comprises a plurality of permanent magnets carried by said outer rim of said upper wind turbine for rotation in a rotational path of movement about said vertical rotation axis, said stator for said upper wind turbine comprises a plurality of stator coils at spaced locations along said rotational path of movement, said rotor for said lower wind turbine comprises a plurality of permanent magnets carried by said outer rim of said lower wind turbine for rotation in a rotational path of movement about said vertical rotation axis, and said stator for said lower wind turbine comprises a plurality of stator coils at spaced locations along said rotational path of movement for said lower wind turbine.

4. The wind energy conversion system recited in claim 2 wherein said rotor for said upper wind turbine comprises a plurality of permanent magnets carried by said outer rim of said upper wind turbine for rotation in a rotational path of movement about said vertical rotation axis, said stator for said upper wind turbine comprises three single phase generators each having a stator coil along said rotational path of movement, said generators being timed to produce a three-phase electrical output, said rotor of said lower wind turbine comprises a plurality of permanent magnets carried by said outer rim of said

lower wind turbine for rotation in a rotational path of movement about said vertical rotation axis, and said stator for said lower wind turbine comprises three single phase generators each having a stator coil along said rotational path of movement for said lower wind turbine, said generators of said lower wind turbine being timed to obtain a three-phase electrical output.

5. The wind energy conversion system recited in claim 3 wherein said rotor for said upper wind turbine comprises a plurality of permanent magnets carried by said outer rim of said upper wind turbine for rotation in a planar rotational path of movement about said vertical rotation axis, each of said stator coils for said upper wind turbine comprises a pair of curved stator coil segments extending along said rotational path of movement with said stator coil segments curving away from the plane of said rotational path of movement to produce an electrical output of changing voltage, said rotor of said lower wind turbine comprises a plurality of permanent magnets carried by said outer rim of said lower wind turbine for rotation in a planar rotational path of movement about said vertical rotation axis, each of said stator coils for said lower wind turbine comprises a pair of curved stator coils extending along said rotational path of movement for said lower wind turbine with said stator coil segments for said lower wind turbine curving away from the plane of said rotational path of movement for said lower wind turbine to produce an electrical output of changing voltage.

6. The wind energy conversion system recited in claim 2 wherein said blades of said upper wind turbine have a pitch angle, said blades of said lower wind turbine have a pitch angle in opposition to said pitch angle of said upper wind turbine, and said balancing mechanism includes a pitch adjustment mechanism for each of said wind turbines for adjusting said pitch angles of said blades.

7. The wind energy conversion system recited in claim 1 wherein said rotor for said upper wind turbine comes into alignment with said stator for said upper wind turbine as said rotor for said upper wind turbine rotates therepast, said stator of said upper wind turbine being spaced from said rotor aligned therewith by an air gap, said rotor of said lower wind turbine comes into alignment with said stator for said lower wind turbine as said rotor for said lower wind turbine rotates therepast, said stator for said lower wind turbine being spaced from said rotor aligned therewith by an air gap, and said balancing mechanism includes an air gap adjustment mechanism for each of said wind turbines for adjusting the size of said air gaps.

8. The wind energy conversion system recited in claim 1 wherein said tower is a guyed tower comprising a frame defining a containment area for said upper and lower wind turbines, a base supporting said frame at an elevated position above the ground, and a plurality of guy cables anchored to the ground and connected to at least one of said frame and said base.

9. The wind energy conversion system recited in claim 1 and further comprising a hood disposed over said upper wind turbine and having an air intake opening facing lateral to said vertical rotation axis for directing intake air to said upper and lower wind turbines, and an exhaust plenum disposed below said lower wind turbine for directing exhaust air away from said wind turbines, said exhaust plenum having an outlet opening facing away from said vertical rotation axis.

10. The wind energy conversion system recited in claim 9 wherein said hood and said exhaust plenum are mounted for rotation about said vertical rotation axis, and further comprising a rudder assembly for effecting rotation of said hood about said vertical rotation axis to maintain said intake opening facing upwind, and an exhaust plenum drive mechanism for rotating said exhaust plenum about said vertical rotation axis to maintain said outlet opening facing downwind.

11. The wind energy conversion system recited in claim 9 and further including a plurality of openable and closeable relief ports in said hood, said relief ports being openable to relieve excess intake air from said hood.

12. The wind energy conversion system recited in claim 9 and further including a water misting system for releasing water into the intake air.

13. The wind energy conversion system recited in claim 1 and further including a strain gauge for each of said wind turbines for monitoring and controlling said torques.

14. A wind energy conversion system comprising

a wind turbine comprising a stator, a blade assembly mounted for rotation about a rotation axis in response to air flow through said wind turbine, and a rotor carried by said blade assembly for rotation past said stator to produce an electrical output, said blade assembly carrying said rotor for rotation in a rotational path of movement disposed in a plane, said rotor coming into alignment with said stator as said rotor is rotated in said rotational path of movement, said stator being spaced from said rotor aligned therewith by an air gap; and

an air gap adjustment mechanism including a track along which said stator is moved toward and away from said plane of said rotational path of movement to respectively decrease and increase the size of said air gap.

15. The wind energy conversion system recited in claim 14 wherein said stator includes a stator coil, said rotor includes a permanent magnet, said air gap adjustment mechanism includes a housing mounting said stator coil at a location along said rotational path of movement, said housing being movable along said track, said track mounting said housing for movement of said stator coil along a direction perpendicular to said plane of said rotational path of movement with said stator coil remaining at said location while being moved toward and away from said plane of said rotational path of movement.

16. The wind energy conversion system recited in claim 14 wherein said stator includes a stator coil, said rotor includes a permanent magnet, said air gap adjustment mechanism includes a housing mounting said stator coil and movable along said track, said track mounting said housing for movement of said stator coil along a direction at an acute angle to said plane of said rotational path of movement with said stator coil moving along said rotational path of movement while being moved toward and away from said plane of rotational path of movement.

17. The wind energy conversion system recited in claim 16 wherein said stator coil is movable automatically along said direction at an acute angle to said plane of said rotational path of movement to increase the size of said air gap in response to increased drag force on said stator coil due to increased rotational speed of said blade assembly, said stator coil being movable automatically along said direction at an acute angle to said plane of said rotational path of movement to decrease the size of said air gap in response to decreased drag force on said stator coil due to decreased rotational speed of said blade assembly.

18. The wind energy conversion system recited in claim 17 wherein said air gap adjustment mechanism further comprises a resilient restraining member applying a force on said stator coil in opposition to increased drag force on said stator coil.

19. The wind energy conversion system recited in claim 18 wherein said air gap adjustment mechanism further comprises a strain gauge for monitoring torque produced by said wind turbine.

20. The wind energy conversion system recited in claim 14 wherein said wind turbine is an upper wind turbine and further comprising a lower wind turbine disposed below said upper wind turbine, said lower wind turbine comprising a stator, a blade assembly mounted for rotation about said rotation axis in response to air flow through said lower wind turbine, and a rotor carried by said blade assembly of said lower wind turbine for rotation past said stator of said lower wind turbine to produce an electrical output, said blade assembly of said lower wind turbine carrying said rotor of said lower wind turbine in a rotational path of movement disposed in a plane, said rotor of said lower wind turbine coming into alignment with said stator of said lower wind turbine as said rotor of said lower wind turbine is rotated in said rotational path of movement for said lower wind turbine, said stator for said lower wind turbine being spaced from said rotor for said lower wind turbine aligned therewith by an air gap, and an additional air gap adjustment mechanism for said lower wind turbine including a track along which said stator for said lower wind turbine is movable toward and away from said plane of said rotational path of movement for said lower wind turbine to respectively decrease and increase the size of said air gap for lower wind turbine.

21. The wind energy conversion system recited in claim 14 wherein said rotation axis is vertical and further including a tower supporting said wind turbine at an elevated position above the ground.

22. A wind energy conversion system comprising

a wind turbine including a stator, a blade assembly mounted for rotation about a vertical rotation axis in response to air flow through said wind turbine and a rotor carried by said blade assembly for rotation past said stator to produce an electrical output;

a hood disposed over said wind turbine defining an intake air passage for supplying intake air to said wind turbine, said hood having an intake opening facing lateral to said vertical rotation axis for taking in intake air and a discharge opening for discharging the intake air toward said wind turbine, said hood being rotatable about said vertical rotation axis to maintain said intake opening facing upwind;

an exhaust plenum disposed beneath said wind turbine defining an exhaust passage for exhausting air away from said wind turbine, said exhaust plenum having an outlet opening facing away from said vertical rotation axis for exhausting the air from said exhaust plenum, said exhaust plenum being rotatable about said vertical rotation axis to maintain said outlet opening facing downwind; and

a tower supporting said wind turbine in an elevated position above the ground.

23. The wind energy conversion system recited in claim 22 and further comprising a drive mechanism for rotating said exhaust plenum about said vertical rotation axis in response to rotation of said hood about said vertical rotation axis.

24. The wind energy conversion system recited in claim 22 wherein said wind turbine is an upper wind turbine and further comprising a lower wind turbine disposed beneath said upper wind turbine, said lower wind turbine including a stator, a blade assembly mounted for rotation about said vertical rotation axis in response to air flow through said lower wind turbine, and a rotor carried by said blade assembly of said lower wind turbine for rotation past said stator of said lower wind turbine to produce an electrical output, said exhaust plenum being disposed beneath said lower wind turbine, said tower supporting said lower wind turbine in an elevated position above the ground.

25. The wind energy conversion system recited in claim 22 and further comprising a closeable and openable relief port in said hood, said relief port being openable to release excess intake air from said hood.

26. The wind energy conversion system recited in claim 22 and further comprising a water misting system for releasing water into the intake air.

27. The wind energy conversion system recited in claim 26 wherein said water misting system includes a water mister in front of said intake opening.

28. The wind energy conversion system recited in claim 22 and further including one or more batteries and an electrical control system to allow controlled charging of said one or more batteries as a function of varying output while maintaining full output voltage via an inverter system.

29. The wind energy conversion system recited in claim 24 and further including a control system to counter-balance torque generated by said turbines to mitigate twist torque on said tower.